

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

Claims 1-14 are pending in the present application before this amendment.

Claims 15-18 have been withdrawn in response to an earlier restriction requirement. By the present amendment, Claim 2 has been canceled without prejudice, and Claims 1, 9-10, and 13 have been amended. No new matter has been added.

Claims 9 and 14 stand rejected under 35 U.S.C. § 112, ¶2 as being indefinite.

Applicant respectfully submits that the subject matter disclosed in the originally filed claims is considered a part of the original disclosure. It is respectfully asserted that the statement in the Office Action page 2 stating that the recited limitations of the Claims 9 and 14 (originally filed) are not disclosed in the Specification or drawings appears to be incorrect, because the subject matter of the originally filed claims is considered a part of the original disclosure according to the 35 USC §132 and the pertinent USPTO rules MPEP §2163.06.

There are three pending independent Claims 1, 10, and 13.

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0133274 (Chen). Claims 10 stands rejected under 35 U.S.C. § 103(a) as being obvious over Chen in view of U.S. Patent Application Publication No. 2003/0025202 (Mikagi). Claims 13 stands rejected under 35 U.S.C. § 103(a) as being obvious over Chen and Mikagi in view of Poo. The "et al." suffix, which may appear after a reference name, is omitted in this paper.

In response, Claims 1, 10, and 13 have been amended to recite at least the

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following limitations, which are not taught or suggested by Chen, Mkagi, Poo, or other cited references, whether the reference is considered individually or in combination:

--a **second planar layer** formed on the first planar layer;--

--an **oxide layer made of polyimide based material** formed on the second planar layer, wherein the bonding pads are exposed through openings in the first planar layer, the second planar layer, and the oxide layer;--

--a seed metal layer formed on the oxide layer, on the first and second planar layers exposed in the openings, and on the bonding pads exposed through the openings;--

--metal patterns formed on the seed metal layer,--

--wherein each metal pattern is electrically connected to one of the bonding pads,--

--wherein the area of each metal pattern on the oxide layer is larger than the area of the bonding pad to which the metal pattern is electrically connected, and--

--wherein the oxide layer relieves stress on each bonding pad applied through the electrically connected metal pattern--

As clearly shown in FIG. 3 of the present application, the presently claimed invention includes the three-layer structure of the first planar layer (such as 22), the second planar layer (such as 23), and the polyimide material based oxide layer (such as 24). The seed metal layer and the metal pattern (such as 26a, 27) would be the source that would introduce the stress to the chip, for example, the bonding pad (such as 21). However, the oxide layer (such as 24) that is formed on the first and second planar layers relieves the applied stress, as the metal pattern and seed metal layer (such as 26a, 27) are formed on the oxide layer (such as 24) as shown in FIG. 3.

As understood, the Office Action relies on Chen and Mikagi to assert that these

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references allegedly suggest the structure of the independent claims including Claim 1 (before the present amendment). However, Applicant respectfully disagrees.

Neither Chen nor Mikagi (nor other cited references)—considered individually or in combination—teach or suggest the three-structure combination of the first planar layer, the second planar layer, and the oxide layer for relieving the stress applied to the metal pattern formed on the oxide layer. Further, none of the cited references teach or suggest the claimed oxide layer being made of the polyimide material.

Chen teaches only a single insulation layer 320 as shown in FIGS. 3A-3I. Further, as taught in Chen paragraph [0024], the insulation layer 320 is not made of polyimide material. In addition, Chen fails to suggest or teach that its insulation layer 320 is capable of relieving stress applied to it by the solder balls 360 through the "build up circuit structure 370".

Mikagi also teaches only a single insulating film 14 as shown in FIGS. 1-2, 413A, -13D, and 14-20, made of "a two layer structure including a plasma SiO₂ layer and a plasma SiON layer" (paragraph [0006]). Mikagi's insulating film 14 is not made of polyimide material. Mikagi teaches a "polyamide coat 18" as in FIG. 1; however, the polyimide coat 18 is formed above and around the metal/alloyw films (15, 16A, and 17) to provide opening for a solder ball 20. Further, Mikagi fails to teach or suggest that its insulating film 14 is capable of relieving any applied stress.

At least for these reasons, Applicant respectfully submit that all independent Claims 1, 10, and 13 are not taught or suggested Chen, Mikagi, Poo, or other cited references, whether they are considered individually or in combination. Accordingly, withdrawal of the rejections and an indication of allowable subject matter are

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respectfully requested.

Applicant respectfully assert that any attempt to establish a conclusive statement of obviousness that the insulation layer 320 in Chen or the insulating film 14 in Mikagi is capable of relieving stress would be a forbidden speculation, when these references fail to teach or suggest such. According to MPEP §2143.01, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to combine the reference teaching. The mere fact that the teachings of the prior art can be modified or combined does not establish a motivation or suggestion to combine and make the resultant combination prima facie obvious. The prior art must suggest the desirability of the combination. MPEP §2143.01.

Applicant's response to such a conclusive statement of obviousness is that the basis for improperly finding the presently claimed invention obvious appears to be the teaching found in this application, and not in the prior art. Thus, the obviousness rejection in the Office Action improperly relies on the **impermissible hindsight reasoning**, because the rejection would not be obvious absent Applicant's disclosure in this application that discloses the claimed hiding layer that is transferable to a different medium in presence of heat. (See 37 C.F.R. § 1.104(c)(2).)

Applicant respectfully request a specific showing of such teaching or suggestions in the cited references themselves or a specific a showing of proof that prior art insulation materials such as in Chen or Mikagi are capable of relieving stress as claimed and described is in the knowledge generally available to one of ordinary skill in the art

For the reasons set forth above, Applicant respectfully submits that Claims 1-14,

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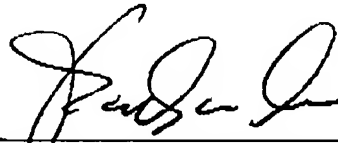
pending in this application, are in condition for allowance over the cited references.

This amendment is considered to be responsive to all points raised in the Office Action.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections and earnestly solicits an indication of allowable subject matter.

Should the Examiner have any remaining questions or concerns, the Examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,



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